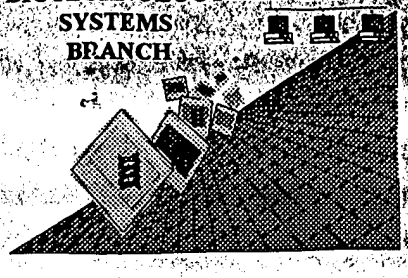
BIOTECHNOLOGY SYSTEMS BRANCH

RAW SEQUENCE LISTING ERROR REPORT



The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) detected errors when processing the following computer readable form:

Application Serial Number: 09/847,513

Source: OIPE

Date Processed by STIC: 5/16/2001

THE ATTACHED PRINTOUT EXPLAINS DETECTED ERRORS.
PLEASE FORWARD THIS INFORMATION TO THE APPLICANT BY EITHER:
1) INCLUDING A COPY OF THIS PRINTOUT IN YOUR NEXT COMMUNICATION TO THE APPLICANT, WITH A NOTICE TO COMPLY or,
2) TELEPHONING APPLICANT AND FAXING A COPY OF THIS PRINTOUT, WITH A NOTICE TO COMPLY
FOR CRF SUBMISSION QUESTIONS, PLEASE CONTACT MARK SPENCER, 703-308-4212.

FOR SEQUENCE RULES INTERPRETATION, PLEASE CONTACT ROBERT WAX, 703-308-4216.
PATENTIN 2.1 e-mail help: patin21help@uspto.gov or phone 703-306-4119 (R. Wax)
PATENTIN 3.0 e-mail help: patin3help@uspto.gov or phone 703-306-4119 (R. Wax)

TO **REDUCE** ERRORED SEQUENCE LISTINGS, **PLEASE** USE THE **CHECKER VERSION 3.0 PROGRAM**, ACCESSIBLE THROUGH THE U.S. PATENT AND TRADEMARK OFFICE WEBSITE. SEE BELOW:

Checker Version 3.0

The Checker Version 3.0 application is a state-of the-art Windows based software program employing a logical and intuitive user-interface to check whether a sequence listing is in compliance with format and content rules. Checker Version 3.0 works for sequence listings generated for the original version of 37 CFR §§1.821 – 1.825 effective October 1, 1990 (old rules) and the revised version (new rules) effective July 1, 1998 as well as World Intellectual Property Organization (WIPO) Standard ST.25.
Checker Version 3.0 replaces the previous DOS-based version of Checker, and is Y2K-compliant. Checker allows public users to check sequence listings in Computer Readable form (CRF) before submitting them to the United States Patent and Trademark Office (USPTO). Use of Checker prior to filing the sequence listing is expected to result in fewer errored sequence listings, thus saving time and money.

Checker Version 3.0 can be down loaded from the USPTO website at the following address:
http://www.uspto.gov/web/offices/pac/checker

Raw Sequence Listing Error Summary

ERROR DETECTED **SUGGESTED CORRECTION** **SERIAL NUMBER:** 09/847,513

ATTN: NEW RULES CASES: PLEASE DISREGARD ENGLISH "ALPHA" HEADERS, WHICH WERE INSERTED BY PTO SOFTWARE

1 ____	Wrapped Nucleics	The number/text at the end of each line "wrapped" down to the next line. This may occur if your file was retrieved in a word processor after creating it. Please adjust your right margin to .3, as this will prevent "wrapping".
2 ____	Wrapped Aminos	The amino acid number/text at the end of each line "wrapped " down to the next line. This may occur if your file was retrieved in a word processor after creating it. Please adjust your right margin to .3, as this will prevent "wrapping".
3 ____	Incorrect Line Length	The rules require that a line not exceed 72 characters in length. This includes spaces.
4 ____	Misaligned Amino Acid Numbering	The numbering under each 5th amino acid is misaligned. This may be caused by the use of tabs between the numbering. It is recommended to delete any tabs and use spacing between the numbers.
5 ____	Non-ASCII	This file was not saved in ASCII (DOS) text, as required by the Sequence Rules. Please ensure your subsequent submission is saved in ASCII text so that it can be processed.
6 ____	Variable Length	Sequence(s) ____ contain n's or Xaa's which represented more than one residue. As per the rules, each n or Xaa can only represent a single residue. Please present the maximum number of each residue having variable length and indicate in the (ix) feature section that some may be missing.
7 ____	PatentIn ver. 2.0 "bug"	A "bug" in PatentIn version 2.0 has caused the <220>-<223> section to be missing from amino acid sequence(s) _____. Normally, PatentIn would automatically generate this section from the previously coded nucleic acid sequence. Please manually copy the relevant <220>-<223> section to the subsequent amino acid sequence. **This applies primarily to the mandatory <220>-<223> sections for Artificial or Unknown sequences.**
8 ____	Skipped Sequences (OLD RULES)	Sequence(s) ____ missing. If intentional, please use the following format for each skipped sequence: **(2) INFORMATION FOR SEQ ID NO:X:** **(i) SEQUENCE CHARACTERISTICS:**(Do not insert any headings under "SEQUENCE CHARACTERISTICS") **(xi) SEQUENCE DESCRIPTION:SEQ ID NO:X:** **This sequence is intentionally skipped** Please also adjust the "(iii) NUMBER OF SEQUENCES:" response to include the skipped sequence(s).
9 ____	Skipped Sequences (NEW RULES)	Sequence(s) ____ missing. If intentional, please use the following format for each skipped sequence. **<210> sequence id number** **<400> sequence id number** **000**
10 ____	Use of **n's** or **Xaa's** (NEW RULES)	Use of n's and/or Xaa's have been detected in the Sequence Listing. Use of <220> to <223> is MANDATORY if n's or Xaa's are present. In <220> to <223> section, please explain location of **n** or **Xaa**, and which residue **n** or **Xaa** represents.
11 ____	Use of "Artificial" (NEW RULES)	Use of "Artificial" only as "<213> Organism" response is incomplete, per 1.823(b) of New Sequence Rules. Valid response is Artificial Sequence.
12 ____	Use of <220>Feature (NEW RULES)	Sequence(s) ____ are missing the <220>Feature and associated headings. Use of <220> to <223> is MANDATORY if <213>ORGANISM is "Artificial Sequence" or "Unknown" **Please explain source of genetic material in <220> to <223> section.** (See "Federal Register," 6/01/98, Vol. 63, No. 104, pp. 29631-32) (Sec. 1.823 of new Rules)
13 ____	PatentIn ver. 2.0 "bug"	**Please do not use "Copy to Disk" function of PatentIn version 2.0.** This causes a corrupted file, resulting in missing mandatory numeric identifiers and responses (as indicated on raw sequence listing). Instead, please use "File Manager" or any other means to copy file to floppy disk.

AMC - Biotechnology Systems Branch - 4/06/2001

OIPE

RAW SEQUENCE LISTING DATE: 05/16/2001
PATENT APPLICATION: US/09/847,513 TIME: 13:37:02

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Does Not Comply
Corrected Diskette Needed

pp. 2-16

3 <110> APPLICANT: MBARI
4 DeLong, Edward
5 Beja, Oded
7 <120> TITLE OF INVENTION: Light-driven energy generation using proteorhodopsin
9 <130> FILE REFERENCE: MBA-101
C--> 11 **<140> CURRENT APPLICATION NUMBER: US/09/847,513**
C--> 11 **<141> CURRENT FILING DATE: 2001-05-01**
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12 <151> PRIOR FILING DATE: 2000-05-03
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21 <213> ORGANISM: Naturally occurring gamma proteobacterium
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25 <222> LOCATION: (50866)..(51615)
26 <223> OTHER INFORMATION: light-driven proton pump; has the properties of a light-driven pr
27 oton pump when expressed with retinal in Escherichia col
30 <300> PUBLICATION INFORMATION:
31 <301> AUTHORS: Beja,O., Aravind,L., Koonin,E.V., Suzuki,M.T., Hadd,A.,Nguyen,L.P.,
32 Jovanovich,S.B., Gates,C.M., Feldman,R.A., DeLong,E.F
33 <302> TITLE: Bacterial rhodopsin: evidence for a new type of phototrophy in the sea
34 <303> JOURNAL: Science
35 <304> VOLUME: 289
36 <305> ISSUE: 5486
37 <306> PAGES: 1902-1906
38 <307> DATE: 2000-09-15
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PATENT APPLICATION: US/09/847,513 TIME: 13:37:02

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see item 10 on Error Summary Sheet

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342 cactaatgcc ttttttatca atgattctca tacctttttgc agatacttta agatttacga 9000
344 acctgttctc agattcaacc caaaatttgt gtgtgtgaag attaggaaaa aactttcttt 9060
346 tagtcctatt tttagcgtga gaaacattgt ttcctgactg tggtatctta cctgttactt 9120
348 gacatatttt actcattgaa acgcgatttt atagaacact gaggaactta gcaatactat 9180
350 tgtgaaacaa atttatttat tacggcatgc acaatctgac tgggagagct ctaatcagaa 9240
352 agattttgat agaccattag caagaaaagg cattgaagaa gcaaataaaa tatcatgtta 9300
354 ctgcaaatct cattcaattt tagtagataa aatattctgt agcactgcag aaagaactaa 9360
356 gcagactttt gatatatgca gtgatgggct taattatcca atagctgaag cagtctatac 9420
358 tgatgagctt tacttttctg gccctggtga gatcgttaag cttatccaaa gtttaagtga 9480
360 attcatttcc tctgttttaa taataggcca caatccatca atgcaaatgt acatagatgc 9540
362 tatttcagaa aatcctcata ttacgtattc aacatgcggg ctggcagaaa ttctcgttga 9600
364 aagttcatgg aaagacttat ctttaaaaaa atgtaagtta aaatctttta ttcaaccagg 9660

RAW SEQUENCE LISTING DATE: 05/16/2001
PATENT APPLICATION: US/09/847,513 TIME: 13:37:02

Input Set : A:\MBA10101.txt
Output Set: N:\CRF3\05162001\I847513.raw

366 agagctttaa aaattgaaaa acataaaaat taagatcatt aacccactaa tgggatccaa 9720
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370 agatagtaat ctcagccttc aagcaggaac atctcagttg atacctattg gttttgcaat 9840
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374 gcatggaatc gttcttggta atctggttgg gttgattgat tcagactatc aaggagagct 9960
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378 tgcacaaatg attatagttc cagtgattca agcagatttt gaaattgtag acgagttcaa 10080
380 tgagactcag aggggagaaa agggttttgg aagttcaggt ataaattgat aaatttactt 10140
382 tttcttgcca aatctttctt caaatttctg aactcttccg ccagtatcaa taatttttg 10200
384 cttaccggta taaaaaggat gagaagcaga ggatatatca agagggtagt atgggtatgt 10260
386 ttttccatct tcccattctt tcgtttgagt cgtatctaat gttgaacgaa tgagaaagaa 10320
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408 ggtctggaaa aacagaagtt tacttaagag ttgccgaaac ttttattaaa aataataagt 10980
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458 acttaagcta aatattaatc ttaattaatt gtcctgggta tattggttta ttgtttagtt 12480
460 tattctctgt attaatttct tctacagtca ccccaaatct tatcgctatt tctgataaga 12540
462 catccccttt ttgtattttg taagtcacaa agcctggatc aatactcata aaggtatttg 12600

<210> 4
<211> 750
<212> DNA
<213> Naturally occurring gamma proteobacterium

<220>
<221> CDS
<222> (1)..(750)
<223> light-driven proton pump; has the properties of a light-driven pr
oton pump when expressed with retinal in Escherichia coli. Note
that additional three nucleotide residues incorporated by pcr pri
ming with reference to the original 31A08 DNA sequence (DNA resid
ues 4-6, ggt), adding a new restriction site for cloning

FYI: Per 1.823 of Sequence Rules, the <2237 response
has a MAXIMUM of 4 lines.

VERIFICATION SUMMARY DATE: 05/16/2001
PATENT APPLICATION: US/09/847,513 TIME: 13:37:03

Input Set : A:\MBA10101.txt
Output Set: N:\CRF3\05162001\I847513.raw

L:11 M:270 C: Current Application Number differs, Replaced Current Application No
L:11 M:271 C: Current Filing Date differs, Replaced Current Filing Date
L:24 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:1
L:134 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1
L:3559 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:2
L:3572 M:286 W: Invalid Database Entry: Valid Formats YYYY-MM-DD or Mon-YYYY, SEQ ID:2
L:3584 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:3
L:3597 M:286 W: Invalid Database Entry: Valid Formats YYYY-MM-DD or Mon-YYYY, SEQ ID:3
L:3615 M:259 W: Allowed number of lines exceeded, <223> Other Information:
L:3790 M:286 W: Invalid Database Entry: Valid Formats YYYY-MM-DD or Mon-YYYY, SEQ ID:6